A Green Infrastructure Plan

to Restore, Connect, and Protect South Carolina's Habitats

Planning for Green Infrastructure involves protecting and connecting the natural and cultural assets of the Santee Lynches region.

Green Infrastructure Center

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Prepared for the state of South Carolina by the Green Infrastructure Center
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Executive Summary

The Santee Lynches Council of Governments (COG) region contains diverse natural and cultural resources, from scenic rivers to historic battlefields and plantations. With its proximity to Columbia, economic diversity, and a high quality of life, the Santee Lynches region continues to grow. While economic prosperity is important to the communities in this region, it is vital to grow in patterns that conserve the region's natural resources and habitats. Continuation of local efforts to conserve land, create regional partnerships, and establish both ordinances and planning guidance for growth that protect green infrastructure will ensure the high quality of life of the Santee Lynches region for future generations.

The Santee Lynches COG region is in the middle of the state, and is bounded on the west by the Wateree River and Lake Marion and on the east by the Lynches River. It encompasses the counties of Clarendon, Sumter, Lee, and Kershaw. The region includes forests, wetlands, blackwater rivers, lakes, and farms. Kershaw and Sumter are growing counties, while Lee and Clarendon remain predominantly rural. Sparkleberry Swamp, Lake Marion, and the scenic Black River contribute to a sense of place rooted in nature-based recreation. Additionally, there is a military presence in the region with Shaw Air Force Base and Poinsett Range. Approximately 12% of the land in the Santee Lynches COG region is protected in several state parks, national wildlife refuges, wildlife management areas, State Forests, military land, and other open spaces.

This region is the ancestral home of the Santee, Wateree, Catawba, and Congaree Native Peoples.* The Catawba Nation is the only federally recognized tribe currently in South Carolina and has a reservation in the Catawba COG region. The Sumter Tribe of Cheraw Indians is a state recognized native group living in this region.

Sparkleberry Swamp, Lake Marion, and the scenic Black River contribute to a sense of place rooted in nature-based recreation.

Green Infrastructure Planning Process

This Green Infrastructure Plan comprises a set of maps and strategies for conserving and restoring a connected landscape in the state. GIC led the Santee Lynches COG and local stakeholders though GIC's Six-Step Green Infrastructure Planning Process with a series of four workshops from 2021-22. This process involved mapping habitats cores and corridors, as well as existing natural and cultural assets, followed by risk analysis to inform strategies for action. With these data, local stakeholders determined priority areas for conservation in the region, as well as strategies to ensure a connected landscape into the future. GIC followed regional COG workshops with state agency engagement. The resulting statewide plan includes statewide priorities informed by regional priorities.

This COG chapter will appear as a separate document, distinct from the full report, since it is one of ten COG chapters that have been included in the statewide assessment. The full report can be found here: https://scgiplan-gicinc.hub.arcgis.com/ or at www.gicinc.org or https://www.scfc.gov/management/urban-forestry/

The statewide scale of this project did not allow GIC to drill down to the level of county and city green infrastructure plans, but did establish important priorities for each region.

1. In the first workshop, GIC presented an overview of the project and shared a map of the region's ranked habitat cores. Feedback on the accuracy of the map and areas of development were noted and incorporated.

2. In the second workshop, GIC presented themed overlay maps that showed the region's agricultural soils, water resources, recreation, and cultural assets and asked workshop attendees to add their local input on additional assets, such as regional greenways. The final Santee Lynches asset maps and dataset included new data recommended by participants.

Santee Lynches FAST FACTS

1,618,560 acres– total COG area (2,529 mi²)

827,520 acres– of habitat cores (1,293 mi²)

51% of COG land area is habitat cores

151,680 acres– of protected cores (237 mi²)

18% of habitat cores are protected

183,680 acres– area of protected land (cores and other) (287 mi²)

12% of total area are protected land

32,640 acres– area of public parkland (51 mi²)

2% of total land is public parkland

426,880 acres– area of habitat cores with known cultural/archaeological resources (667 mi²)

298,880 acres– area of habitat cores with highest value ranking (top 5th) (467 mi²)

314,240 acres– area of habitat cores that intersect a groundwater protection zone (491 mi²)

456,960 acres– area of prime agricultural soils on open land (714 mi²)

24,320 acres of wetlands (38 mi²)

1,428 mi of 1,932 mi (74%)– miles of streams that flow within a habitat core

201 of 770 (26%)– of habitat cores support cultural or recreational assets

54 of 770 (7%)– of habitat cores support known rare, threatened, or endangered species

Santee Lynches COG

3. In the third workshop, GIC presented draft maps of risks to habitat cores in the region, including development, utility-scale solar development, and impaired waters. Stakeholder feedback about these risks was used to update and finalize the risk maps.

4. In the fourth and final workshop, GIC shared a strategy map that showed ranked habitat cores, protected lands, and regional corridors. The stakeholders then considered priority habitats and risks to those assets and recommended strategies to reduce or prevent impacts to high-value resources.

6-Step Green Infrastructure Planning Process

1. Set Your Goals What does your community value?

2. Review Data What do we know or need to know, to map identified values? Combine the state modeled data with local data.

3. Map Your Community's Ecological and Cultural Assets Based on the goals established in Step 1 and data from Step 2.

4. Assess Risk What assets are most at risk and what could be lost, if no action was taken?

5. Rank Assets and Determine Opportunities Based on those assets and risks you have identified, which ones should be restored or improved?

6. Implement Opportunities Include natural asset maps in both daily and long-range planning (park planning, comp plans, zoning, tourism and economic development, seeking easements etc.)

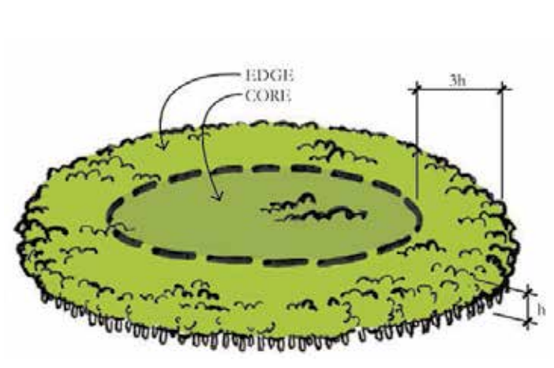
Habitat Cores

Habitat cores are intact areas of the landscape that provide adequate habitat to support native species and were modeled using source data from the 2019 National Land Cover Dataset. Habitat cores are forests, forested wetlands, and marshes at least 100 acres or more in size and are ranked using additional attributes such as water richness, topography, and the presence of rare, endangered, or threatened species. This size is large enough to provide adequate foraging and nesting habitat for interior forest dwelling birds and to support a range of other wildlife species.

Habitat cores encompass 51% of Santee Lynches COG land area.

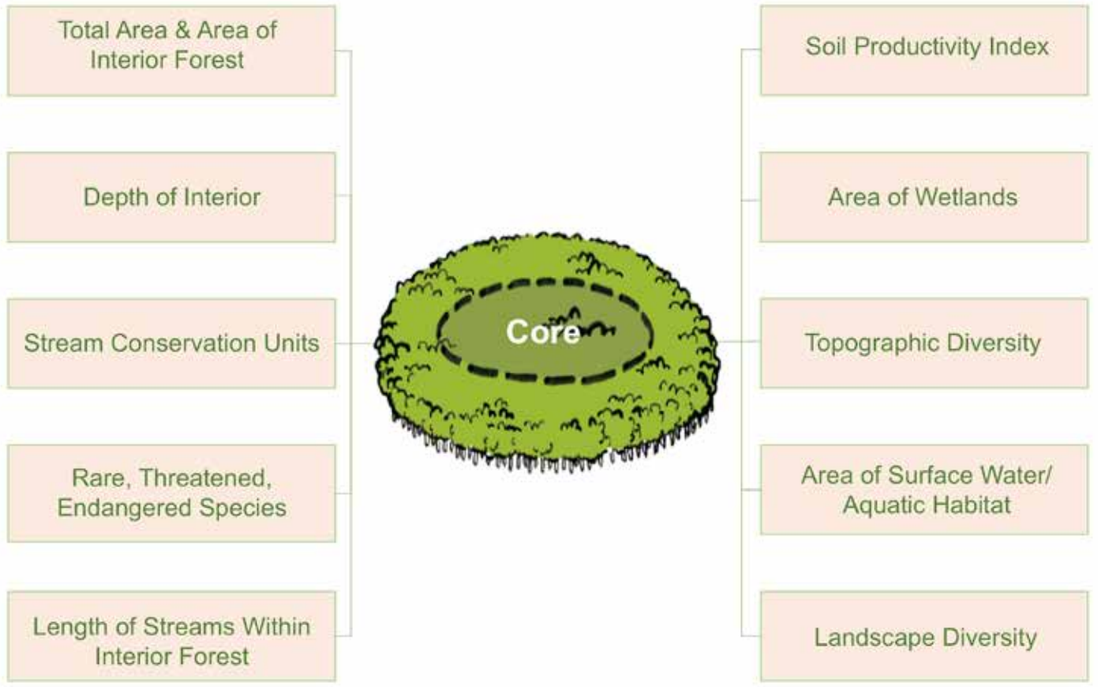
For more on how habitat cores are created, see the Methods and Maps section (page 7) and the Technical Appendix of the full report.

Ranking cores for the values they provide allows land-use planners, agency officials, and site managers to prioritize those specific habitat cores that best meet management goals and objectives, while providing the highest value for species.



Habitat cores consist of an area of intact interior wildlife habitat of 100 acres or more and an edge area that serves as a buffer absorbing impacts from outside the core.

Habitat cores are ranked based on these ecological metrics.

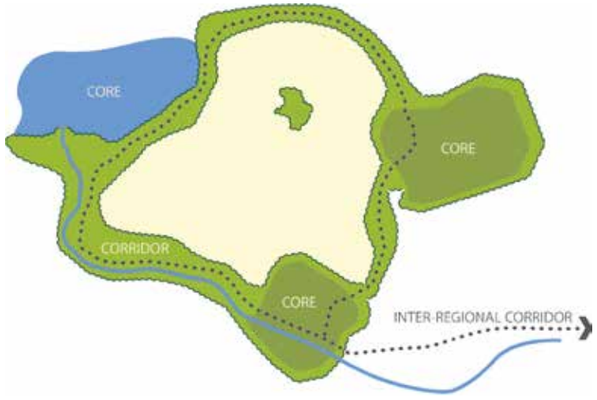


GIC modeled and mapped ranked habitat cores across both the region and state, based on ecological metrics, *see chart above*.

Corridors

Wildlife moves between habitat cores along corridors that support biodiversity by allowing species to move across the landscape and repopulate areas following such disturbances as hurricanes or fires. Restoration or preservation of corridors may also present opportunities to incorporate trails for human recreation. In addition to regional corridors, GIC modeled corridors that are of statewide importance. A graphic representation of this connectivity is displayed on the maps as state and local corridor lines. As the region continues to grow, every effort should be made to continue to maintain these corridors for a more connected and resilient landscape.

For more on corridor modeling see the Introduction section (pages 10 and 11) and the Technical Appendix of the full report.



Green Infrastructure planning is about connecting the landscape. Corridors provide connections between core habitats. A well-connected landscape is more resilient.

Santee Lynches COG

Assets

Natural Assets are the environmental elements that provide healthy surroundings, recreational opportunities, and clean water and food for both people and wildlife. These natural assets include forests, waterways, wetlands, bays, agricultural soils, and other natural resources. *Cultural Assets* are the landscape elements or uses that people value, such as parks, boat landings, trails, historic or archaeological sites, or scenic vistas and roads that add to the beauty of the area. Natural assets support cultural assets by providing scenic backdrops to historic sites, buffering them from storms and providing settings in which to enjoy them, such as the trails through historic sites that engage visitors in history while they enjoy the natural surroundings. GIC mapped these assets using existing state and national datasets, as well as data from stakeholders. The asset maps include water, agriculture, recreation, and cultural assets. Locating these assets is the first step in protecting them and allows decision-makers and planners to make more informed decisions about growth and conservation.

Risks

Mapping important habitats, agricultural soils, and cultural sites is only a first step towards planning to conserve important assets into the future. Mapping risks, in order to understand which assets are most vulnerable is the next step. GIC analyzed the following risks across the state: sea level rise, storm surge, impaired waters, development, and solar development. These risk maps can be used to determine most critical regional risks and priority areas for conservation. Impaired waters maps can be used to determine areas to target for riparian plantings. Development and solar development maps can guide conservation efforts, as well as planning policy. Tools to mitigate risk can also include establishing solar ordinances, or drawing urban growth boundaries to avoid high-value habitat cores.

Santee Lynches Risks

12 of 770 (2%) habitat cores with **impaired streams**

194 of 770 (25%) habitat cores at risk of **development**

669 of 770 (87%) habitat cores at risk of **solar development**

687 of 770 (89%) habitat cores at **cumulative risk**

Lake Marion is the largest lake in South Carolina. The wildlife rich forested wetlands of Sparkleberry Swamp are upstream toward the confluence of the Wateree and Congaree Rivers.

Regional Observations

The Santee Lynches region's highest quality habitat cores are found in the Wateree, Black, and Lynches River corridors. The larger wildlife corridors in the region also follow these rivers and connectivity can be ensured or restored by maintaining and planting buffers and seeking protection along them. The prime agricultural soils in the region are found primarily in Lee, Sumter and Clarendon counties. The region supports nature-based recreational assets, such as such as paddling a blackwater river, hiking in a state park, and fishing or boating on a lake. The number of assets highlighted in the maps is the result of participation by stakeholders, so those counties that participated in the process are likely to see more assets represented on the maps.

Protected land makes up 12% of the land in the Santee Lynches COG, below the statewide rate of 14%. The Governor has adopted the 30 by 30 goal to preserve 30% of the state's lands by 2030. To achieve this goal, the region will need to more than double its protected lands. While the area lacks a regionally focused land trust, the Congaree Land Trust works in the Lynches watershed and is open to collaborating with the Santee Lynches COG to protect high-value habitat cores and corridors in the region. Currently, 18% of regional habitat cores are protected and the habitat cores and corridors map shows the most important lands that still need protection. Public parkland in the region is 2% of the land, below the 5% statewide rate. As the region continues to grow, South Carolina Parks Recreation and Tourism and local governments should prioritize more high-quality public park space in the region and utilize habitat cores as a key criterion for future parkland.

The greatest risk for the region is development, especially suburban sprawl-patterned growth and utility scale solar development. Urban development risks are greatest in Kershaw and Sumter counties. Additionally, habitat cores and prime agricultural soils across the region are at risk of development for utility-scale solar farms. Planning for smart, compact growth will be critical to maintain habitat connectivity, food production capability, and quality of life in the region.

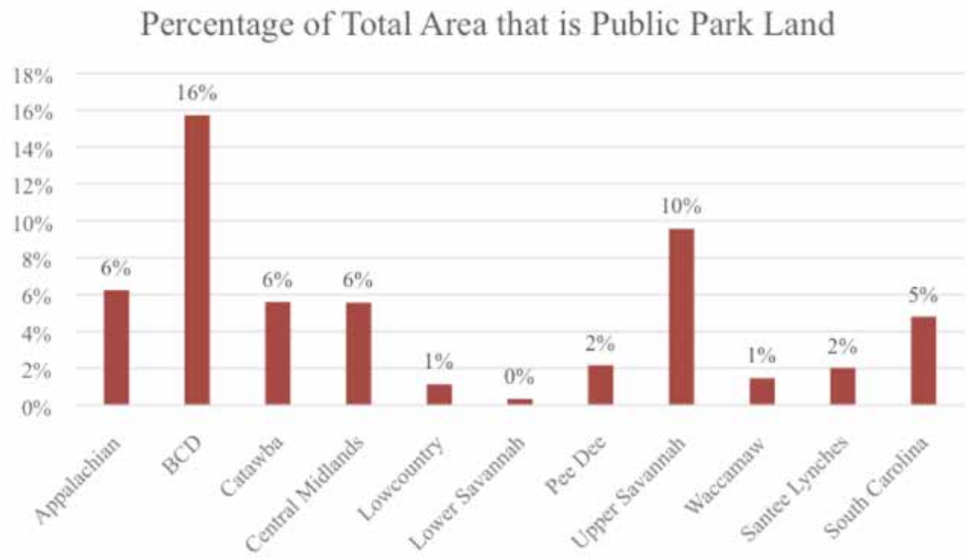
Regional Stakeholders

Participants in the Santee Lynches stakeholder workshops include representatives from:

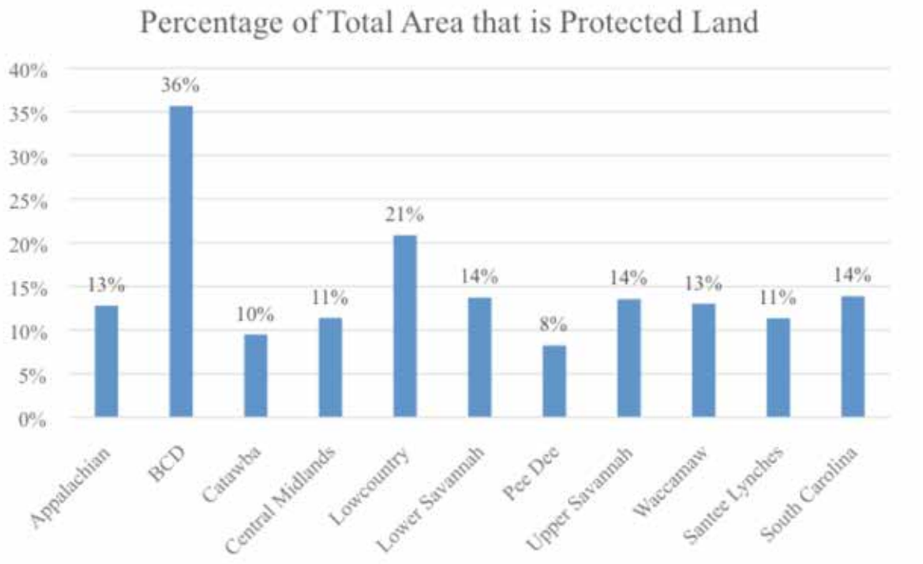
- Santee Lynches Council of Governments•
- Kershaw County
- Lee County
- City of Sumter
- City of Camden
- SC Forestry Commission

The region supports nature-based recreational assets, such as such as paddling a blackwater river, hiking in a state park, and fishing or boating on a lake.

Santee Lynches COG



The percentage of public park land in the Santee Lynches region is 2%, below the 5% statewide rate.



The percentage of protected land in the Santee Lynches region is 11% below the 14% statewide rate.

Santee Lynches Priority Areas

The Santee Lynches COG created a green infrastructure priority map in 2018. These maps update that information and establish some additional strategies..

- Protect Sparkleberry Swamp and Pack's Landing and provide recreational access and ecotourism guidance.
- The Cowasee Basin/Congaree Biosphere Region crosses over into the Santee Lynches COG and Santee Lynches should work with the Central Midlands COG to build on their success documenting and marketing the entire region.
- Protect lands and restrict development in the areas surrounding Shaw Air Force Base.
- Protect and restore Cane Savannah Creek as an important connection between the Pocotaglio River and Cowasee Basin.
- Integrate wildlife crossings and enhancements into the redesign of bridges that experience frequent flooding on:
  - Route 15 over Cane Savannah Creek
  - Route 120 over Cane Savannah Creek
  - Route 401 over Rocky Bluff Swamp and Long Branch
  - Route 15 over Whites Millpond and Cowpen Swamp
- Protect and restore the Pocotaligo River.
- Protect and restore the Black River.
- Protect and restore the Lynches River.

Santee Lynches COG Priority Areas Map

This map illustrates the habitat cores corresponding to the COG identified priority areas for protection and restoration.

Santee Lynches COG

Santee Lynches Strategies

Project maps to inform these strategies can be found at the end of this chapter as well as on the project HUB site https://scgiplan-gicinc.hub.arcgis.com/ . Users can access all the data online and download data for any county.

Strategy 1: Implement a Green Space Sales Tax.

Kershaw, Lee, Sumter, and Clarendon counties should consider placing the Green Space Sales Tax on their ballots to raise funds to conserve more land in the region. Counties can use the funds collaboratively to protect land across county boundaries.

Strategy 2: Create and strengthen solar ordinances.

Create solar ordinances in Kershaw, Lee, and Clarendon counties. Strengthen solar ordinances in Sumter County. The South Carolina Energy Office has resources for creating or updating solar ordinances and model solar ordinances.

Strategy 3: Establish a regional land trust.

This region does not have an active regional land trust. Either a new land trust should be established or land trusts working in adjacent areas, such as the Congaree and Pee Dee Land Trusts, should expand their coverage to include easements in this region.

Strategy 4: Kershaw should establish zoning and growth boundaries.

Kershaw County is rapidly growing and should use habitat cores and corridors data and maps to establish zoning and urban growth boundaries to protect high-quality green infrastructure.

Strategy 5: Collaborate with Central Midlands COG in promoting and protecting Cowasee Basin/Congaree Biosphere Region.

Santee Lynches COG should collaborate with Central Midlands COG in documenting and marketing the recreational and cultural assets of the Congaree biosphere and partnership area to draw nature-based recreation and tourism opportunities to the region.

Strategy 6: Promote ecotourism in Sparkleberry Swamp.

Sparkleberry Swamp is an under-utilized natural treasure with potential for historic tourism and ecotourism. The COG should seek funding to create public maps and outreach material for interpretation, guidance, and access to interest people to explore this unique natural and cultural resource..

Strategy 7: Incorporate wildlife crossings into bridge replacements and redesigns.

Bridge redesign and replacement should accommodate wildlife crossings for several bridges on SC 120, 401, and 15 that experience frequent flooding and will be replaced.

Strategy 8: Protect areas surrounding Shaw Air Force Base.

The City of Sumter and Sumter County should protect land around Shaw Air Force base and restrict development near the facilities. Conserving the natural landscape around military facilities meets needs for both conservation and base security.

Strategy 9: Pass a new subdivision ordinance in the City of Sumter and Sumter County.

The City of Sumter and Sumter County should pass a new subdivision ordinance that bans lot line to line tree clearing and incentivizes conservation subdivisions and low impact site design that works with topography and existing site conditions.

Strategy 10: The City of Camden is using tree canopy assessment data to plan for green infrastructure.

The City of Camden received a technical support grant from the SCFC to create an urban tree canopy assessment and planning assistance. The city will use this data to meet tree canopy goals and prioritize new tree plantings.

Next Steps

The data created for this plan are a foundation upon which to build a detailed local Green Infrastructure Plan. Any municipality or county wishing to pursue a more detailed local plan should contact GIC.

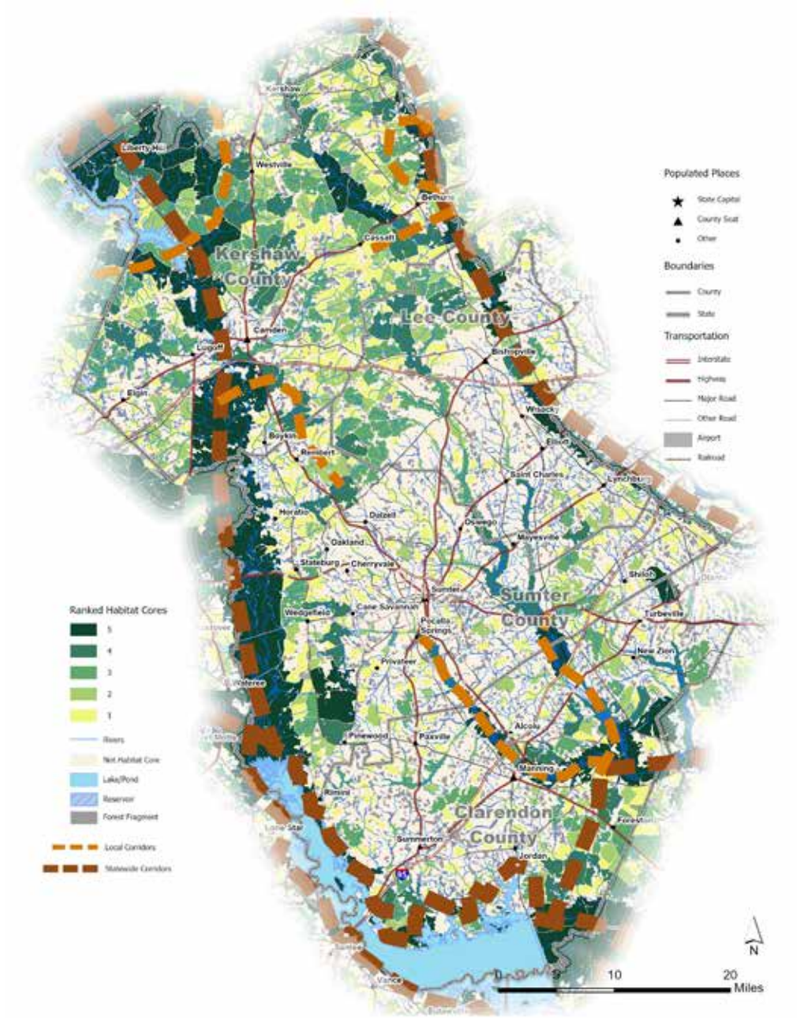
The purpose of this project was to identify and prioritize those green infrastructure assets that most urgently require protection or restoration in the state. The strategies and maps of habitat cores, corridors, assets, risks, and priorities provide a roadmap and shared vision for conservation and restoration efforts of state agencies, counties, cities, and landowners. Moving forward, agencies, planners, and citizens can view and download these priorities, maps, and data through the HUB site GIC has created in partnership with Esri. Additionally, the GIS datasets have been disseminated to all the agencies, municipalities, and organizations involved in this project to use in land use decisions and conservation planning. Data are available to view or download here: https://scgiplan-gicinc.hub.arcgis.com/

Forest buffers along one of the many rivers protects water quality and facilitates wildlife movement.

Santee Lynches COG

Maps

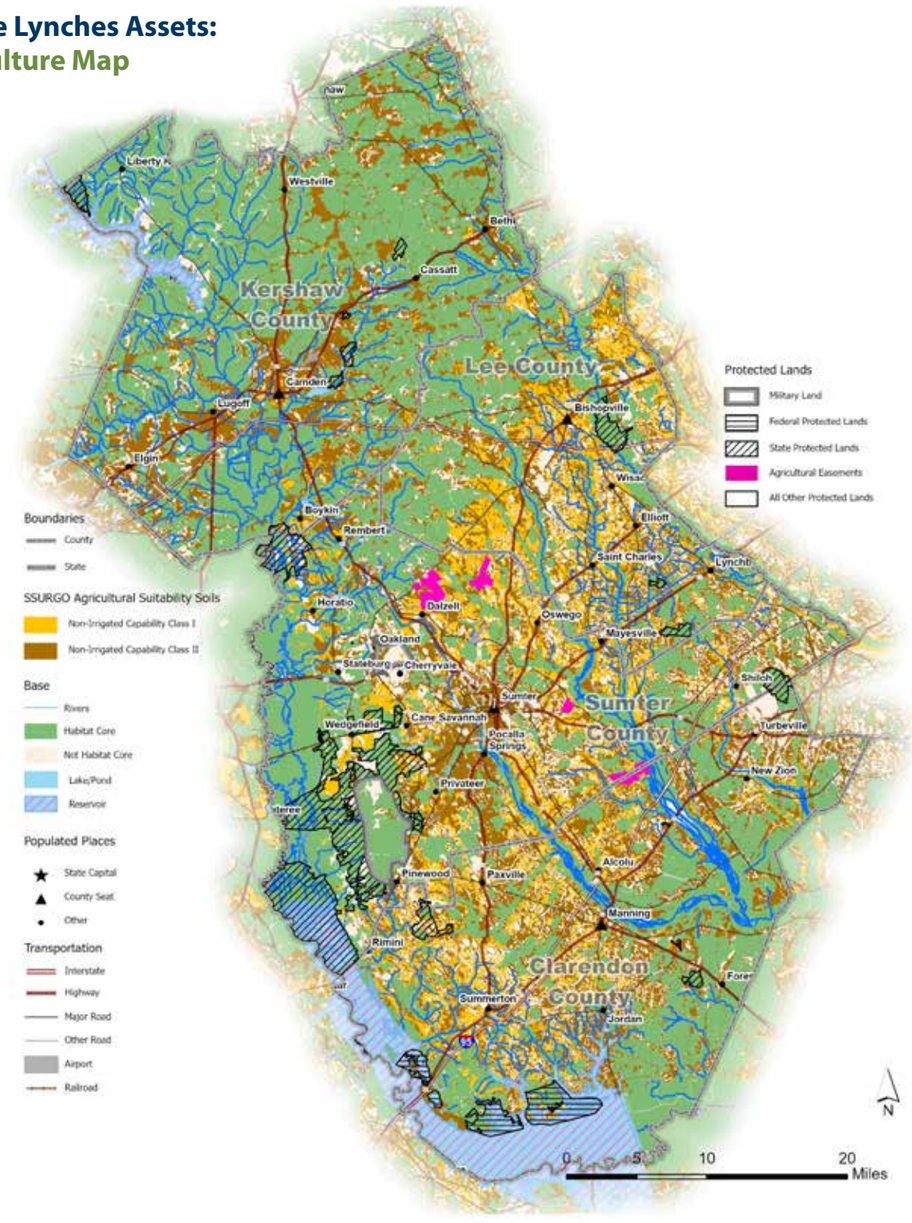
Santee Lynches Strategic Planning Map: Ranked Habitat Cores and Corridors



Habitat cores are intact natural landscapes large enough to support interior forest or marsh dwelling species. This map depicts the region's habitat cores and shows them connected by corridors to form a network. The more connected the landscape, the more resilient it is and the more pathways there are for people, pollinators, and plants. The habitat cores are ranked based on ecological metrics, with dark green representing the highest quality habitat cores and yellow representing the lowest quality habitat cores. A ranking of 5 is the best and 1 is the lowest. Additionally, statewide and regional wildlife corridors are represented on this map by brown dashed lines.

View all these maps on line and download habitat core data at:
https://scgiplan-gicinc.hub.arcgis.com/

Santee Lynches Assets: Agriculture Map

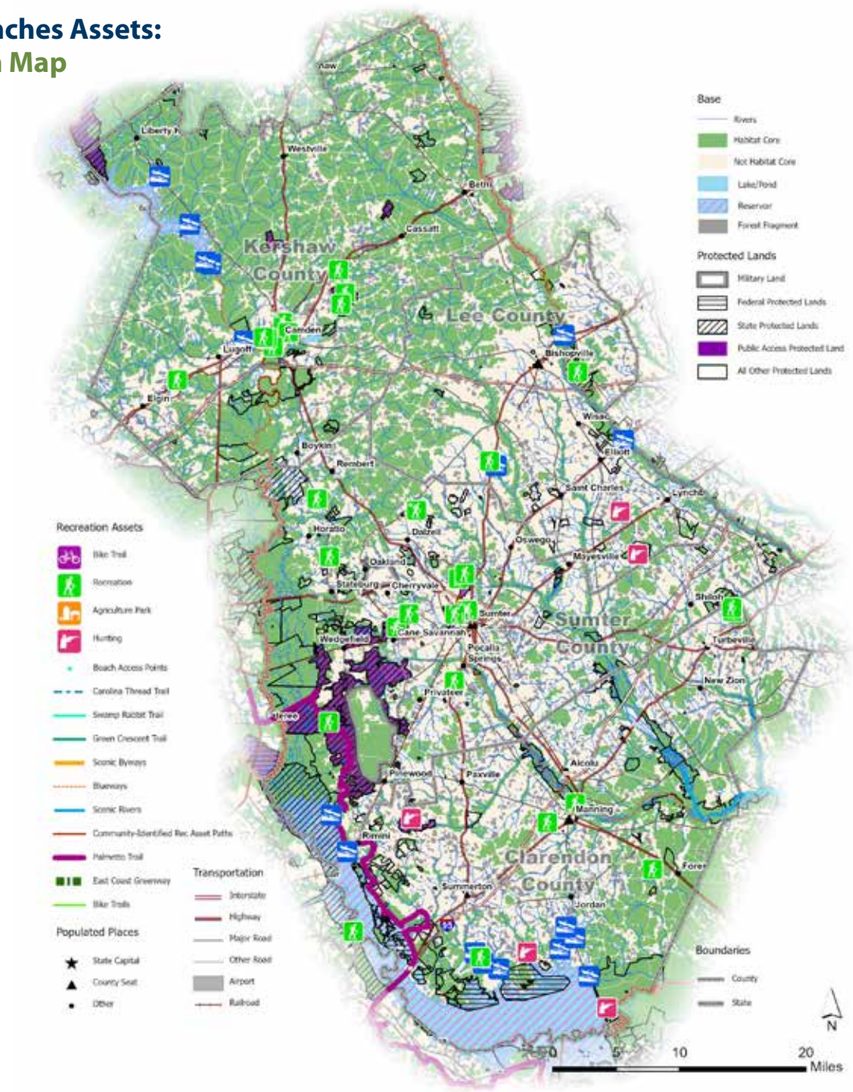


This map identifies the highest quality agriculture soils (classes 1 and 2) on open land, as well as agricultural easements in the region.

Santee Lynches Assets:
Water Map

This map depicts drinking water reservoirs, surface water intakes, groundwater protection zones, and the 100-year floodplain in the Santee Lynches region. The many forests and wetlands in the region help cleanse runoff to protect surface water quality and provide groundwater recharge.

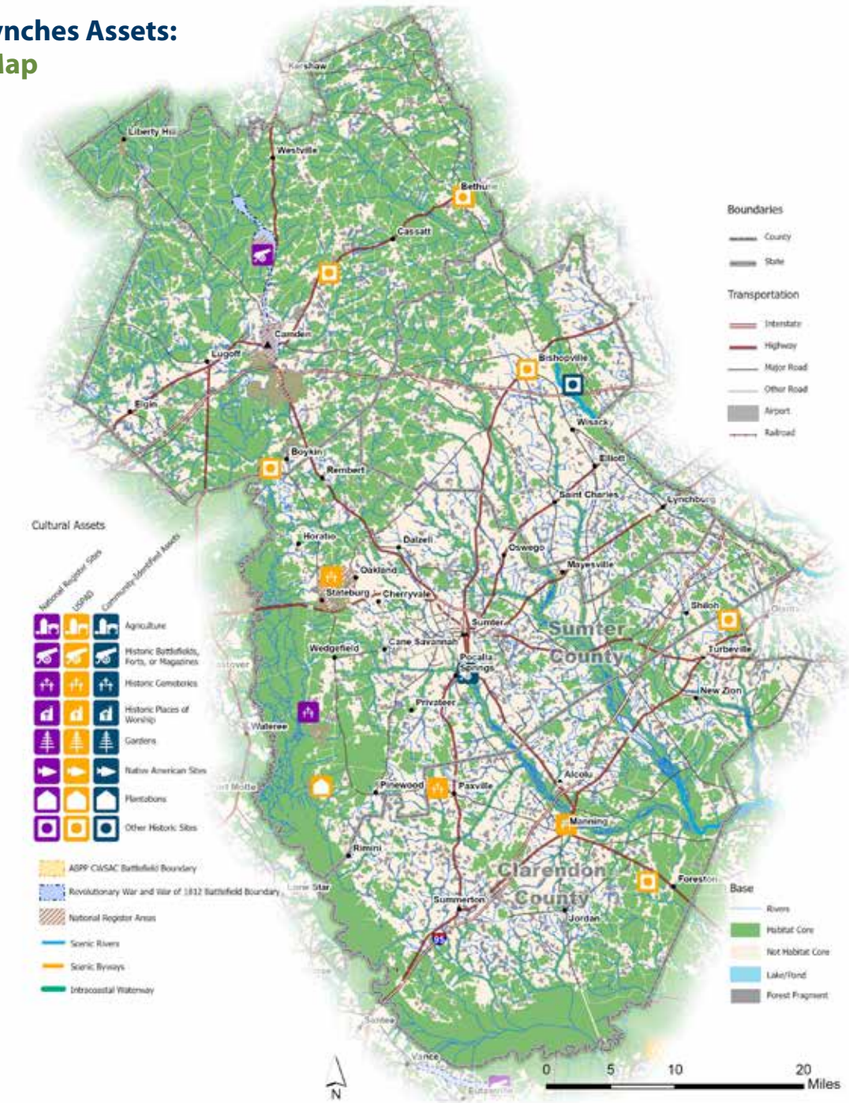
Santee Lynches Assets:
Recreation Map



This map depicts boat ramps, blueways, scenic rivers, scenic highways, greenways, Wildlife Management Areas, and federal, state, and local parks over 10 acres in the Santee Lynches region. Many recreational activities depend on a healthy landscape for their enjoyment, such as hiking, birding, boating, fishing, hunting, and other nature-based sports. A healthy landscape provides both access and scenic settings for enjoying the outdoors. Large intact habitats provide refuge, shelter, and food for the many species that residents and tourists appreciate when enjoying the outdoors.

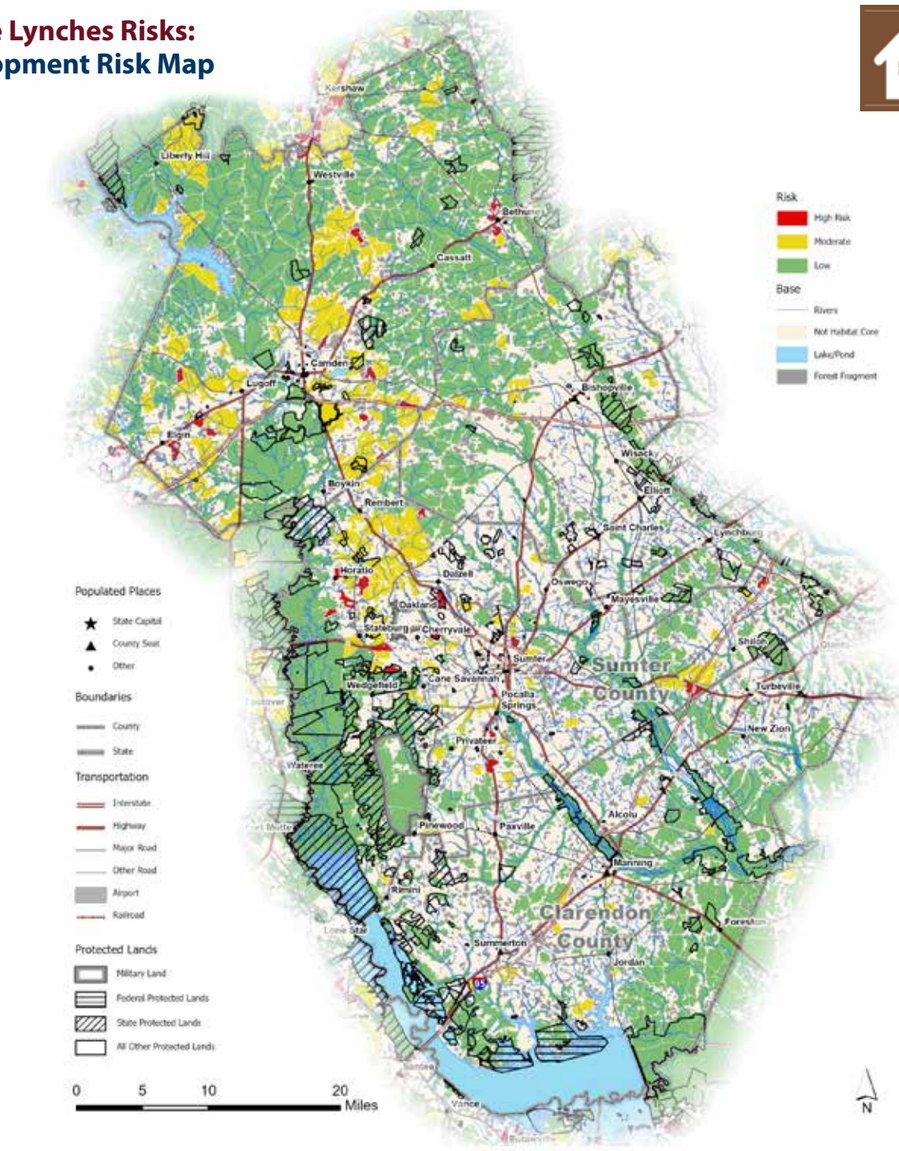
Santee Lynches COG

Santee Lynches Assets:
Culture Map



This map displays historic sites, Native Peoples sites, cultural overlay districts, scenic highways, scenic rivers, and waterfalls in the Santee Lynches region. Natural landscapes provide the context, backdrops, and buffers for these sites and contribute to their settings and beauty.

Santee Lynches Risks:
Development Risk Map



This map depicts the level of development risk based on the SLEUTH Urban Growth Model projected to the year 2060, with protected lands excluded.

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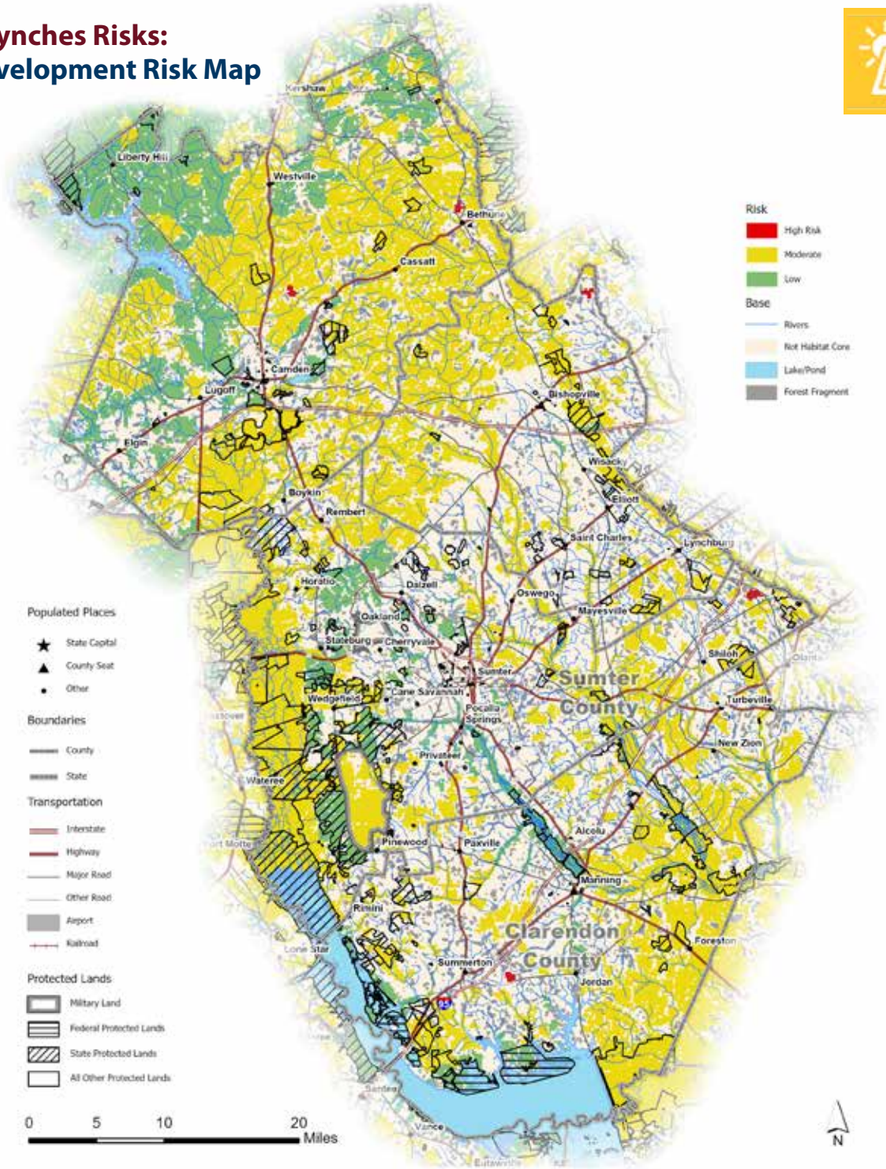
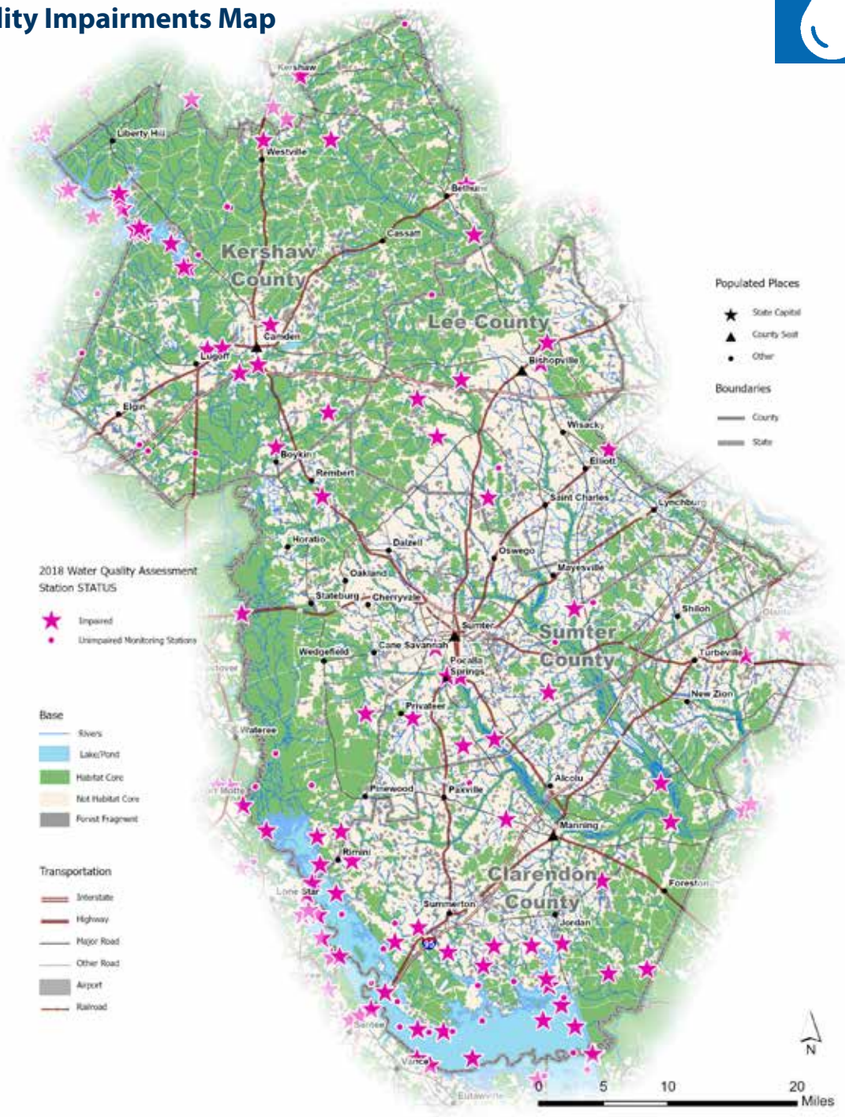
Santee Lynches Risks: Solar Development Risk Map



This map depicts the level of solar development risk based on Argonne Lab's Solar Site Suitability Analysis, with wetlands and protected lands excluded.

Santee Lynches Risks: Water Quality Impairments Map



This map depicts water quality assessment sites and specific impairments across the region, and includes SC DHEC Water Quality Assessment data.

Notes

*Native people of the Santee Lynches region as shown on Native Land Map:
Disclaimer from https://native-land.ca/
This map does not represent or intend to represent official or legal boundaries of any Indigenous Nations. To learn about definitive boundaries, contact the nations in question.

Acknowledgments

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